

LISTING OF CLAIMS:

The following listing of claims replaces all previous versions, and listings of claims in the present application.

1-5. (Canceled)

6. (Currently amended) A semiconductor sensor chip comprising:

a semiconductor substrate having a front portion and a rear portion, the front portion and the rear portion having a different conductivity to form a P-N junction plane parallel to front and rear surfaces of the semiconductor substrate;

a sensing element disposed in the front portion at a vicinity of the front surface of the semiconductor substrate;

a diaphragm contoured by a cavity extending from the rear surface into the rear portion of the semiconductor substrate; and

a diffused layer disposed on and along the P-N junction plane and exposed to a side surface of the semiconductor sensor chip, the diffused layer having a same conductivity type as the rear portion where the cavity is located and having an impurity density higher than an impurity density of the rear portion of the semiconductor substrate,

wherein the diffused layer has a pattern for permitting the front and rear portions to directly contact each other at a position below the diaphragm, and wherein the diffused layer is a buried layer not exposed at the front surface of the front portion.

7. (Currently amended) A semiconductor sensor chip comprising:

a semiconductor substrate having a front portion and a rear portion, the front portion and the rear portion having a different conductivity to form a P-N junction plane parallel to front and rear surfaces of the semiconductor substrate;

a sensing element disposed in the front portion at a vicinity of the front surface of the semiconductor substrate;

a diaphragm contoured by a cavity extending from the rear surface into the rear portion of the semiconductor substrate; and

a diffused layer disposed on and along the P-N junction plane and exposed to a side surface of the semiconductor sensor chip, the diffused layer having a same conductivity type as the rear portion where the cavity is located and having an impurity density higher than an impurity density of the rear portion of the semiconductor substrate,

wherein corners of the cavity are rounded, and wherein the diffused layer is a buried layer not exposed at the front surface of the front portion.

8. (Original) The semiconductor sensor chip as in claim 6, wherein:

the semiconductor sensor chip has a rectangular plane shape; and

the diffused layer is exposed to four sides of the sensor chip.

9-10. (Canceled)

11. (Previously presented) The semiconductor sensor chip as in claim 7, wherein the diffused layer is for preventing P-N junction plane leakage current.